

## **CLAIMS**

What I claim is:

1. An electronic ballast system comprising:

a) an EMI filter having an input connected to a source of excitation and providing a filtered output;

b) a full-wave rectifier having an input connected to said output of said EMI filter and providing a rectified dc voltage;

c) a power factor correction circuit having an input connected to said output of said full-wave rectifier and providing a power factor regulated output; and

d) a first inverter ballast circuit having an input connected to said output of said power factor converter, said first inverter ballast circuit having a sweep frequency circuit for supplying an oscillating current to power a first fluorescent lamp, without the need for preheating said lamp.

2. The electronic ballast system according to claim 1, wherein said EMI filter has hot and neutral terminals and wherein said electronic ballast system further comprises:

a) a power supply having an input connected across said hot and neutral terminals and providing a second dc voltage having a positive and negative potential;

b) switching means having an input connected to said output of said power supply and having a plurality of switch contacts;

c) a diode having an anode and a cathode with the anode thereof connected to said positive potential of said second dc voltage;

d) a battery having positive and negative terminals with the negative terminal connected to said negative potential of said second dc voltage and the positive terminal connected to said cathode of said diode; and

e) a second inverter ballast circuit having an input arranged by means of said plurality of said switch contacts to be interconnected to said positive and negative terminals of said battery when said second dc voltage of said power supply is absent, said second inverter ballast circuit having a sweep frequency circuit for supplying an oscillating current to a second fluorescent lamp without the need of preheating said second fluorescent lamp.

3. The electronic ballast system according to claim 2, wherein said second inverter ballast circuit further comprises means for supplying said oscillating current of said second inverter to said first fluorescent lamp.

4. The electronic ballast system according to claim 2, wherein said first inverter ballast circuit further comprises fault control logic arranged in parallel with said first fluorescent lamp and connected to an output and an input of said sweep frequency circuit and having means for disabling said sweep frequency circuit when said first fluorescent lamp becomes inoperable.

5. An inverter ballast circuit comprising:

a) a half-bridge arrangement having an input terminal connected to a positive dc voltage, a control terminal connected to a first end of a resonant circuit, and a grounded terminal connected to ground;

b) a driver providing first and second outputs with the first output connected to said control of said half-bridge arrangement, said first and second outputs each supplying an oscillating current;

c) said resonant circuit having a second end connected to a first cathode of a fluorescent lamp having a second cathode connected to ground; and

d) a pair of diodes arranged in parallel but opposite directions with respect to said ground and interposed between said first cathode of said fluorescent lamp and said second output of said driver.

6. The inverter ballast circuit according to claim 5, wherein said half-bridge arrangement comprises first and second MOSFET gated power transistors.

7. The inverter ballast circuit according to claim 5, wherein said positive d.c. voltage has a value of about 450 volts.

8. The inverter ballast circuit according to claim 5, wherein said resonant circuit comprises an inductor and a capacitor arranged in series between said control terminal of said half-bridge arrangement and said first cathode of said fluorescent lamp.

9. A power factor correction circuit having an input and an output with the input connected to first dc voltage having positive and negative terminals and the output providing a second dc output voltage having positive and negative terminals and a predetermined power factor; said power factor correction circuit comprising:

a) an inductor having a first winding with said first winding having an input and an output terminal, said input of said first winding connected to said positive terminal of said second dc voltage;

b) power switch having first, second and third electrodes with the first electrode connected to said output of said first winding;

c) a diode having an anode and a cathode with the anode connected to said output of said first winding and the cathode connected to said positive terminal of said second dc output voltage;

d) capacitive means arranged across said positive and negative terminals of said second dc output voltage; and

e) a controller having an input and an output with said input connected across said positive and negative terminals of said first dc voltage by a network comprising a capacitor, said controller having means including pulse width modulation control so that the controller provides an output that varies in accordance with the average primary current created by said first rectified dc voltage, said output of said controller being provided on first and second terminals with the first terminal connected to said second electrode of said power switch and the second terminal connected to said third electrode of said power switch.

10. An electronic ballast system as in claim 1 further comprising an emergency inverter ballast circuit for supplying power to said fluorescent lamp when said first inverter system is disabled, without the need for preheating said lamp.

11. An electronic ballast system comprising:

- a) an EMI filter having an input connected to an electrical source and providing a filtered output;
- b) a full-wave rectifier having an input connected to said output of said EMI filter and providing a rectified dc voltage;
- c) a power factor correction circuit having an input connected to said output of said full-wave rectifier and providing a power factor regulated output; and
- d) an inverter ballast circuit having an input connected to said output of said power factor converter, said first inverter ballast circuit having a sweep frequency circuit for supplying an oscillating current to power a fluorescent lamp operatively associated with said inverter ballast circuit without the need for preheating said lamp.